

28 September 2021

Energy Future System Operator Consultation - Northern Gas Networks response.

Thank you for the opportunity to respond to your consultation on the Future System Operator (FSO). This response represents the views of Northern Gas Networks (NGN).

NGN in general supports the concept of establishing an FSO and considers that, in principle this is a pragmatic approach to ensuring that a joined-up gas and electricity energy system is operated and maintained to efficiently deliver the required outputs and outcomes of a net zero energy system in the UK. We also note the intention to deliver any reform with minimal disruption which we agree is in the best interests of customers.

We have responded to each of the questions outlined in your consultation document and offer the following general thoughts that we consider need to be addressed to ensure a framework that is able to deliver a whole system approach is implemented.

We do not consider that the consultation adequately considers the long-term future of gas. Whilst we recognise the inherent uncertainty of the future of the gas network, the framework that is established for any Future System Operator needs to outline how gas will be accounted for and assess the best short- and long-term options to ensure customer and stakeholder interests remain at the heart of any future operating model. The current model appears to focus on a predetermined framework, pointing to the least disruptive pathway, however this may not be the most beneficial to consumer value over the longer term and we are not convinced that the impact assessment evidences this.

It is evident that the proposed framework is a conscious effort to chip away at the existing National Grid operating model and the perceived power that this single entity could hold. This is not to say that this is wrong, and we consider that this approach is justified within the consultation document and will help to avoid any conflict of interest. However, the approach needs to be embedded within the context of a long-term plan, which is not evident in the current consultation document and we do not consider that this has been well thought out. In the absence of a long-term plan which can evidence both top-down vision supported by bottom -up analysis, there is a significant risk that the establishment of a FSO could be inefficient in delivering the stakeholder and consumer outcomes required for a net zero energy system in the UK.

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Consultation questions

1. Do you agree that net zero will create the need for new technical roles in the electricity and gas systems, and require a new approach to energy system governance?

Agree

We consider that the touch points between gas and electricity will continue to grow both physically and commercially, with new markets and services likely to maximise the value from either system. The scope of this technical change should not be underestimated. The establishment of a central function which has balanced capability across gas and electricity is essential to support this integration and provide the combined skillsets which is essential to progress a net zero energy system.

Central to the development of the FSO is the recognition that capability stretches beyond that of the Transmission System Operator and requires equal skill set and connectivity enjoyed by the distribution system operators. This then links local community needs to the national picture.

Combining skill sets from across transmission and distribution for electricity and gas should support discovery and application of well-suited pathways to net zero that work at a national and regional level in equal measure.

2. Do you agree that the establishment of a Future System Operator is needed to fulfil the kinds of technical roles needed to drive net zero?

To facilitate a net zero energy system, a greater consideration and integration of decision-making capabilities is needed across the energy industry. A single operator which drives the objectives of both gas and electricity and ensures a balanced targeted approach to net zero is required and this cannot happen whilst roles are legally separated. The Future System Operator should provide 'unparalleled insight into how each system operates', however, much depends on how close the resulting relationship is between the FSO and both the transmission and distribution businesses. A clear focus on communications, open data sharing and intelligence is necessary for the FSO to drive the pathway to net zero.

This role as an independent "system architect" will have high levels of dependency on the information flowing into and out of the transmission and distribution system operation. Having a comprehensive view of system behaviours / response to a multitude of conditions is important when driving strategy, so both tactical and strategic positions can be adopted that maximise the capability of the existing asset. Without this insight there is a risk that the medium and long terms pathways to net zero will become disconnected from the day-to-day capabilities of the system at both a national and regional level. Furthermore, that risk could lead to a reduction in credibility across local leaders as they develop their own strategies to deliver net zero for the local communities they serve.

The FSO then will require intelligence and relationships not only with the transmission and distribution operators but also the local communities and businesses they serve to ensure the decisions taken to enable a low carbon future that deliver for all.

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3. Do you agree that a Future System Operator should have roles in both the electricity and gas systems?

Agree

The recent Carbon Trust “Flexibility in Great Britain” report¹ stated “...analysis confirmed the benefit of taking a whole-systems approach to energy; we need to adopt integrated, cross-sector thinking and policy development urgently.” The analysis from this report suggests that the pathway to net zero is unlikely to be any one single energy vector and would be undermined if the FSO had only electricity or indeed only gas. Equally it is our view that this combined energy body would also benefit from a combination of transmission and distribution skill sets to drive strategy at a national and regional level effectively.

In establishing the FSO balance between gas and electricity views is essential. This balance avoids any encouraging bias from either sector that could lead to poor long-term decisions and slower, less productive progression towards net zero.

4. Do you agree that a Future System Operator should be entirely separate from National Grid plc?

Agree

As outlined in the consultation, we agree that it would be challenging for any network operator to deliver the FSO and evidence complete independence. There will always be the perception that in some way bias would play some part in decisions taken. As such, we consider that complete separation is required from all network operators from both electricity and gas to confirm the independence desired.

This will naturally lead to increase in industry costs, with duplication of certain roles functions for industry to continue to operate efficiently and provide robust challenge to the FSO approach to net zero. We note that the timing of this separation could be different for different industries and whilst the destination is a desire for a joined single central system operator, short term it may be more advantageous to leave certain planning elements within National Grid, such as Gas, to allow long term planning for the gas system to progress at pace, as separation at this stage may have (the aforementioned) detrimental effects.

It may also lead to gaps in information flow and over time a disconnect in terms of system knowledge and understanding of the links between the physical and commercial operation.

5. What issues are there with existing institutional arrangements in the UK energy system in relation to system-wide decision-making and planning?

There are fundamental differences between the electricity and gas system functions. For instance, whilst both respond instantly to changes in demand, the extensive natural storage capability of gas means this instantaneous reaction is masked. This also means the development of distribution level forecasting, demand, intake and storage management is essential to liaise with the national system

¹ https://prod-drupal-files.storage.googleapis.com/documents/resource/public/Flexibility_in_GB_report.pdf

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operator and create a seamless within day and day ahead response to customer need. This additional functionality adds to the complexity when bringing both electricity and gas under one FSO, but equally this is where opportunities lie to drive a whole energy systems pathway to net zero.

At a regulatory level gas and electricity have separate price control periods. This disconnect in the long-term strategic development means the GB regulatory framework continues to reinforce a siloed approach to energy, counter to the opportunities suggested from a whole energy systems approach. Developing strategies and cross-sector solutions to net zero that balance what each system can provide, against the needs of the customer is seen as essential but remains more difficult than is desirable whilst this regulatory constraint remains. The current regulatory models also provide very little incentive for this to occur.

The skills developed within either gas or electricity have similarities although any movement of personnel between the energy systems remains limited. Some sharing of process, procedure, approach has been undertaken but the wider system incentives do not support this.

6. What examples/case studies are you aware of where net zero delivery in one part of the energy system did not adequately account for cross-system impacts or costs?

Price signals for electricity generation tend to be stronger than those for gas. Consequently, power generation sites will tend to respond to the needs of the electricity network in favour of the needs of the gas network. Gas generation will often respond quickly when intermittent renewable generation comes on / off and the impact is seen on gas network flows. At present, on most occasions the gas networks can support this sudden response, but future investment may be needed as the instances of this increase (due to grid expansion) and to maintain this support whilst also accommodating gas supply emergency arrangements.

7. Where should government focus in our efforts to improve systems thinking and coordination across the energy system?

The government needs to focus on capturing local community requirements necessary to delivery net zero and properly account for the regional differences that exist in the energy industry. Any framework for whole systems needs to be flexible to manage these differences and then link these to the national position to identify alignment.

There is also an urgent need to unlock regulation and appropriate balanced incentives to accelerate collaboration across gas and electricity. This will help to facilitate the creation of a wider energy ecosystem that supports supply chain and skills aligned to a whole systems approach.

8. Do you agree that the FSO should undertake all the existing roles and functions of NGE SO? If not, please explain why.

This question moves away from a whole systems approach by singling out the electricity system operator. If the NGE SO is established as the new FSO then the bias previously identified in questions 3 and 4 will become embedded in the FSO approach to decarbonisation, undermining the opportunities presented by a decarbonised gas system.

Moreover, the opportunity to incorporate distribution operator skillsets is also missed.

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If the driver for this consultation is to deliver an independent voice and drive a whole systems approach to net zero, then this proposed route to only separate the NGESO is flawed.

9. Do you agree there is a case for the FSO to undertake the long-term strategic functions outlined in Option 1? Please elaborate and provide any views on the functions we have outlined in Option 1.

Agree

For the FSO to deliver net zero solutions, it is entirely right that the long-term strategic functions as described for part of this new body, noting the benefit for this to encompass both gas and electricity. This option does however increase the risk that culturally, strategically, and operationally, the FSO will be driven by an electricity first perspective with the voice of gas diminished, leading to an unbalanced position when establishing the pathways to net zero. This would leave GB at significant disadvantage when compared to other countries across Europe.

10. Do you agree that there is not currently a case for the FSO to undertake all GSO roles and functions, including real-time gas system operation, as outlined in Option 2? If you do not agree, please explain why.

Unclear

We consider that the argument to exclude the GSO in the FSO is not fully established. There is natural complexity, however, if the driver for the FSO is a balanced independent whole systems approach to net zero, it is difficult to see how that can possibly be achieved if the FSO does not absorb the GSO.

The case against adopting the GSO is in part made around the differences between gas and electricity, with electricity not having a safety case to submit and comply to. There is also the wider conversation around whether this lack of safety case for the electricity operator remains appropriate given the predicted penetration into both the heat and transport sectors. This scaled up provision may lead to the conclusion that some form of safety case is warranted to support a secure net zero position.

In the short term it may be wholly acceptable for aspects of the GSO to sit outside of the FSO, however, any decision to this effect needs to be considered in the context of a clear long-term plan for whole systems which is evidently missing from this consultation.

11. Do you have views on the proposal for an advisory role? What organisations do you consider would benefit from the provision of advice by the FSO? Who should bear the costs of providing that advice?

The route to net zero needs to be rapid and support all types of customer during the transition. A variety of bodies representing the range of customer is essential to ensure the energy systems transition is fair and just to all. An example of such a group would be National Energy Action. The cost of this engagement should be borne by the FSO, socialised across all customers as this is where the benefit will be delivered.

Distribution networks will also need to engage with the FSO on an enhanced basis to ensure local knowledge is understood and wrapped into wider strategies. Existing communication protocols,

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[Offtake Arrangement Document for instance], can be adapted to support such engagement, noting that continued communication with NG has the potential to create a joined-up approach.

12. Do you have any views on the other areas where we are considering new and enhanced roles and functions for the FSO (outlined in section 3.2)?

We consider that any FSO would require expertise in both hydrogen and Carbon Capture Utilisation and Storage (CCUS) to accurately plot a pathway to net zero and account for practical whole systems considerations. It is perhaps also relevant to include aspects of transport given the transition of transport from oil to both electricity and gas.

13. What are your views on our proposed characteristics and attributes of a future system operator and how the models presented would deliver against them? Are there other characteristics or attributes that we have not yet considered?

Technically Expert – Agree - the FSO will require high technical competency and systems knowledge. As the consultation is written however, this points only to a single sector. It is difficult to see how such singular technical expertise might offer advantageous whole system solutions if the only capability is that of the NGESO. The technical expertise would need to encompass electricity and gas in equal measure for a balanced view.

Operationally excellent – Agree - to the extent that any system operator must have in depth / unparalleled understanding of the system function and performance at a transmission and distribution level. It should be noted that again this remains exclusively for electricity within the consultation paper and therefore lacks the required gas depth to fulfil a whole system net zero transition.

Accountable to customers – Agree

Independent – Agree

Resilient – Agree – However, there is a need to review the resilience model for electricity considering greater penetration in the heat and transport sectors to ensure the service offered to customers is aligned to their needs and expectations and specifically the established resilience familiar for heat customers provided by gas. Should the design criteria be modified to map to customer needs in these use cases, there are likely impacts to be accounted for through the FSO, for instance the imposition of a safety case or equivalent.

14. Are we considering the right organisation models for the FSO? And why?

Yes. We consider that if the intention is to evidence independence from industry and avoid any conflict of interest the FSO must operationally sit outside the normal bounds of both the gas and electricity network owners. As such operationally it should be independent with independent parties as well as DNOs & GDNs to gain that independence rather than sitting completely outside the current ownership. However, we stress and as reflected by our response to many of the consultation questions, this needs to be in the context of a long-term plan and not short-term amendments to fit a predefined model or to weaken the perceived power of the existing SO.

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15. Are we considering the right elements for the FSO's regulatory and accountability frameworks? And why?

Yes. The fundamental elements of the FSO's regulatory framework include legislation, any designated Strategy and Policy Statement, licences and codes, and funding arrangements through network charges. We consider that these are the right elements to be considered.

We also note that any new legislation may consider the incumbent statute for example the thermal energy regulations to confirm all changes are consistent and enabling, rather than restrictive.

16. Do you have views on the level of shareholding or control involving other 'energy interests' and the FSO at which a conflict of interest would become a concern?

We agree that to ensure that market participants and government have confidence in the FSO's advice and in its facilitation of markets, competition, and system development, the FSO will need to be unconflicted by energy sector interests. Sole ownership by an energy company is not a viable option that would satisfy this objective. However, a small shareholding by a large investment group with a highly diverse portfolio may also be not the optimal solution given the complexities involved in reconciling the fundamental drive to deliver value for its owners with the need to further consumer interest. Clearly, when the level of shareholding or control exceeds 50%, there will be an obvious conflict of interest which is a concern, but even a lower level of concentrated shareholding (e.g. limited to 25%) may not completely alleviate it.

Therefore, we would advocate a model where all GDNs, DNOs and TO would hold an equal share in FSO's capital with a representative on its Board of Directors. Crucially, consumers' voice needs to be represented, e.g. in the form of an independent Board Director collectively appointed by the owners, which would account for the interests and expertise of all key parties of the journey to net zero, avoiding at the same time an undue influence from any one of them

17. Are we considering the right implications of our proposals for Elexon and Xoserve?

If the FSO adopts a whole systems approach, there may be an opportunity for these two organisations to work more closely together whilst retaining independence.

What is your view on the preferred implementation approach? Please explain why.

There is a concern that this consultation and potential separation of key functions from National Grid comes at a time of significant activity across gas and electricity to deliver solutions to net zero. As such this added uncertainty, and if separated, increased complexity further strains the existing industry resource pool. There is a risk this change will impact what is already a complex and busy programme of work and would also remove key skill sets from industry operators at a time where they are needed most.

By establishing the FSO based on the ESO, there is significant risk that the FSO will struggle to achieve a balanced approach across electricity and gas, given the major driving force will be the culture, ways and working and ethos embedded in the existing ESO. This electricity bias may lead to unintended and negative consequences for the GB gas industry and fail to deliver value from a whole systems approach.

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It is also likely that in establishing the FSO, duplication of roles across that and the network businesses will be realised leading to an increase in costs in the medium to long term.

18. Based on the areas where we are considering new and enhanced roles and functions for the FSO, which of these should be prioritised for development? Please explain why.

Prior to any consideration of enhanced roles there is a need to fully integrate existing roles across the electricity and gas sectors. This then establishes a core whole systems body that can drive the required change enabling net zero. Once this is established and tested the FSO can then begin to develop new functionality across electricity and gas to enhance the capability and ensure all forward strategies account for consumer needs across the domestic, business and industry landscape.

19. What do you believe are the risks to implementation? How can these be mitigated?

Competency – as staff transition to the new FSO structure, ensuring that competency and situational awareness is tested and maintained will be increasingly challenging given the disconnect between the system operator and asset owner. This is amplified if only the ESO is transitioned with a marked disconnect between the gas and electricity system operator function and the wider industry.

FSO competencies would require regional understanding of the systems in place and customer needs to inform direction linked to the national agenda. Maintaining such will be strained if the FSO is centralised to a single location without regional representation.

It is unclear how independent approaches to net zero can be developed given the staff likely to be brought into the FSO will retain a National Grid culture and approach to net zero. This unconscious bias will influence views, behaviours long term and take sustained effort and time to break out of that mindset.

There is a risk the FSO will not be an attractive proposition to network employees and as such attracting the right skillsets to create the FSO will be challenging.

There is a very likely risk of duplicated roles across the FSO and industry to provide challenge back to any given FSO strategy and to better inform the networks on long term investment and operational needs linked directly to local growth conditions.

Risk of added confusion given the duplication outlined above. For instance, gas distribution networks communicate regularly with the GSO across all functions. The move to hold these at the FSO and perhaps retain such within National Grid increases workload for GDNs and will lead to diverging scenarios and forecasting.

There is also a risk to the National Emergency processes with the FSO covering only part of the GSO function. This added complexity will not improve emergency management procedures and may lead to adverse conditions for customers. [Noting such a risk is in part mitigated were both ESO and GSO to transition to the FSO in parallel].

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20. Do you have any comments on potential implications of implementation for you, your organisation, or other stakeholders?

Should option 1 be adopted, our organisation will have concerns that our and that of the other GDN businesses voice will remain unheard in the FSO with the DNOs having the benefit of an electricity focused complete FSO function. This would undermine the long-term future of gas in a net zero world. If option 1 is progressed an equal voice for the functions remaining with National Grid need to be formalised to avoid any unconscious bias.

There is also the potential that Option 1 leads to increased workload and disruption to well defined processes of engagement and information sharing. For instance, the FSO could offer the capacity needed at each of our national offtakes but the day-to-day operation may not deliver such due to disconnect between the physical reality of system operation and FSO capacity development processes. This would lead to significant inefficiencies and potential failure modes being realised that currently do not materialise.

An electricity centric FSO will develop net zero pathways that it understands, and which fit with the culture and capabilities of the electricity industry. These then will not be whole system focused and will as a minimum reduce the overall effectiveness of the Great Britain energy systems and at worse create a gap in thinking encompassing gas and electricity, weakening the medium- and long-term competitiveness of GB.

21. What is your view on the position there are likely to be cost savings across the energy system from an increased “whole system” view, as described in paragraphs 47-52 of the IA? If so, is the potential magnitude of savings illustrated fairly in the IA? If not, why not?

In principle, we agree that cost savings across the energy system from an increased “whole system” view are likely.

We note that IA estimates of the potential savings in transmission network development are very wide, ranging from £210 million to £2500 million in Electricity, £50 million to £300 million in Natural Gas and £30 million to £300 million in Hydrogen. Some of the assumptions used to derive those values (e.g. that low scenario represents the lowest available demand projection and 1% reduced costs due to the improved “whole system” decision making, whereas high scenario represents the highest available demand projection and 5% reduced costs assumption) appear directionally sensible, albeit it is to be noted that there is no evidence for this range. However, we do not necessarily agree with the other assumptions, which inform the above estimates, e.g. that network costs scale linearly with demand. NGN does not have sufficient information relating to transmission network investment plans and the insight knowledge of the interaction between SO and TO under the status quo.

Therefore, a detailed analysis would be required to conclude whether the magnitude of savings is illustrated fairly in the IA. Such analysis would be significantly facilitated if BEIS published the financial model with clear references to the input sources and a clear rationale for the assumptions, which was used to derive the above-mentioned values.

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We agree that independent views are important to ensure there aren't biases in existing approaches. However, as noted above there is a risk that these proposals introduce new inefficiencies and reduce collaboration which supports flexibility and agility in current processes and operation.

22. What is your view on the conclusion that policy intervention is likely to increase the benefits of onshore electricity network competition, as described in paragraphs 53-59 of the IA? If you agree, is the potential magnitude of savings illustrated fairly in the IA? If not, why not?

As outlined in our response question 22 there is significant uncertainty regarding some of the assumptions and outputs used to derive the impact assessment, which is also the case relating to the benefits of onshore electricity network competition.

Competition may lead to improved cost positions for transmission; however, it will also increase system complexity, introducing new risks and complex communication arrangements, which ultimately may stifle any minor savings on TOTEX won through the competitive process.

We note that the consultation generally assumes that in creating the FSO, costs will reduce. This implies that the Impact Assessment has been developed to justify a predetermined model. Given the level of uncertainty surrounding the pathways to net zero this seems speculative. An FSO could minimise costs through an integrated approach to energy and investments, but this is not the same as reducing costs or delivering efficiently incurred costs.

23. Do you think that the impact assessment has identified and considered the key costs and benefits of policy intervention? If not, can you provide details on other impacts that have not been considered?

It is evident that the consultation is closely focused on ESO with little content relating to GSO. This introduces bias into the consultation process by not thoroughly exploring both sectors in full. Equally, the stated favoured position of option 1 undermines the overall aim of the consultation.

The consultation process must undertake full examination of the gas sector in line with the work undertaken for electricity and bring these together in a whole systems analysis to determine the best course of action, policy and legislation needs and wider societal benefits of an independent FSO.

In addition, as stated in the IA, a substantial amount of costs and benefits remain unquantified. Therefore, whilst the range of uncertainty over which benefits could occur is asymmetrically skewed towards outcomes resulting in a positive NPV, given only a relatively small benefit is required to materialise to overcome the quantified costs of intervention, the quantified NPV only partly informs the IA. It would be beneficial if other costs were also quantified, such as loss of operational synergies, replication of roles across FSO and TO, learning and familiarisation costs.

24. Do you think that the distribution of impacts is fairly represented, with impacted groups correctly identified? Outlined in table 5 of the IA.

No account has been made of the impacts to distribution companies [gas and electricity]. These have only been covered qualitatively. These impacts would include the systems, resource, communication,

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processes, and capability changes required to continue to engage with National Grid, in addition to commencing partnerships with the new FSO.

25. We invite respondents' views on whether the proposals for energy system governance reform a different impact on people may have who have a protected characteristic (age, disability, gender re-assignment, marriage and civil partnership, pregnancy and maternity, race, religion or belief, sex, or sexual orientation), in different ways from people who don't have that characteristic.

We do not consider that a switch to the FSO would unduly impact these groups any more than those outside that categorisation.

If there are any queries or additional information or clarity required for any of the NGN responses, please contact Greg Dodd, Head of Strategic Planning, (gdodd@northerngas.co.uk), who will be able to deal with your query.

Kind Regards



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